REMARKS

Claims 1, 3-11, 13-15, and 19-23 are presented for examination, of which claims 1, 10, and 23 are independent.

Claims 1 and 10 have been amended to include the limitations of dependent claims 16 and 17, respectively, now cancelled. In particular, Applicant has amended claim 1 to recite the additional limitation "wherein the power flow controller is configured to provide incremental flow change of current." Applicant has also amended claim 10 to recite the additional limitation "wherein selectively regulating the amount of power transferred through the second power transmission line includes changing the flow of current incrementally."

New claim 23 includes the limitations of dependent claim 18, now cancelled, rewritten in independent form. No new matter has been added.

35 U.S.C. § 103 Rejections

Independent claim 1

Independent claim 1 was rejected as being unpatentable over Sinha (U.S. Patent Pub. No. 2003/0183410) in view of Morita (U.S. 6,344,956). The Examiner acknowledges that Sinha fails to teach a power flow controller (Office Action p. 3) but argues that it would have been obvious to use Morita's current-limiting element as a power flow controller in Sinha's power transmission system. We submit that neither Sinha nor Morita, alone or in any proper combination, disclose or suggest a multi-line utility power transmission system comprising "a first power transmission line ... ; a second power transmission line including a superconductor, in parallel with the first power transmission line ... ; and a power flow controller, coupled to the second power transmission line ... ; wherein the power flow controller is configured to provide incremental flow change of current," as recited in amended claim 1. Specifically, as supported by Applicant's specification (e.g., page 7, lines 13-17; p. 8, lines 6-14) and consistent with the common accepted meaning of the word, Applicant's power flow controller provides *incremental* flow change of current.

Morita discloses "a mechanism which promotes or generates quenching in addition to the conduction current ... to accomplish transition of the current-limiting element from a superconductive state to a normal conductive state," where "'quenching' refers to a sudden transition from superconduction to normal conduction" (Morita col. 2, lines 60-67). As a result of this transition, Morita's current-limiting element undergoes a sudden and significant change in resistance. Such a change in resistance would result in a corresponding significant change in the current flowing through any circuit element connected to the current-limiting device:

> "In the event of a short-circuit accident, however, the current flowing to the superconductor [in the current-limiting device] exceeds the critical current, and the heat generated thereby causes transition of the superconductor from a superconductive state to a normal conductive state, thus generating electrical resistance. This resistance limits the fault current" (Morita col. 1, lines 50-55).

Indeed, as shown in Morita's Fig. 10, a fault that occurs in a circuit without the current-limiting element results in conduction of a current 64; the same fault occurring in a similar circuit with the current-limiting element results in conduction of a current 66 (see also col. 8, lines 1-35). Current 66 shows a significant decrease upon application of a magnetic field 66a (that is, upon quenching of the current-limiting element). Morita's current-limiting element clearly provides a significant change in current; it is not configured to provide incremental flow change of current, as recited in amended claim 1. In fact, because the operation of Morita's current-limiting element is based on a large change in resistance as a result of quenching from superconductivity to normal conductivity, it would not be possible for the current-limiting element to provide *incremental* flow change of current. Thus, even assuming Morita's current-limiting element is a power flow controller, and further assuming that it would have been obvious to one of skill in the art to combine Morita's current-limiting element with Sinha's power transmission system, both of which we vehemently deny (see, e.g., Reply to Non-Final Office Action of January 22, 2008), one would still not arrive at the multi-line utility power transmission system of amended claim 1.

For at least this reason, we submit that claim 1 is patentable over Sinha and Morita.

Claims 3-9 and 19-22 depend from claim 1. Thus, claims 3-9 and 19-22 are patentable for at least the same reason claim 1 is patentable.

Independent claim 10

Independent claim 10 is rejected as being unpatentable over Sinha in view of Morita and Hingorani (5,420,495). We submit that none of Sinha, Morita, or Hingorani, alone or in any proper combination, disclose or suggest a method comprising "connecting a first power transmission line ... in parallel with a second power transmission line including a superconductor ... ; supplying power to the first power transmission line and the second power transmission line; ... and selectively regulating during normal operating conditions of the power transmission system by a variable amount the power transferred through the second power transmission line ... ; wherein selectively regulating the amount of power transferred through the second power transmission line includes changing the flow of current incrementally," as recited in amended claim 10.

As discussed above in conjunction with claim 1, Morita's current-limiting element produces a sudden and significant change in current; it does not change the flow of current incrementally, as recited in amended claim 10. Hingorani's power flow control system does not remedy this deficiency. Thus, even assuming Morita's current-limiting element is a power flow controller, and further assuming that it would have been obvious to combine Morita's current-limiting element with Sinha's power transmission system, both of which we vehemently deny, one would still not arrive at the multi-line utility power transmission system of amended claim 1.

For at least this reason, we submit that claim 10 is patentable over Sinha, Morita, and Hingorani.

Claims 11 and 13-15 depend from claim 10. Thus, claims 11 and 13-15 are patentable for at least the same reason claim 10 is patentable.

Independent claim 23

Claim 23 includes the limitations of dependent claim 18 rewritten in independent form. Claim 18 was rejected as being unpatentable over Sinha in view of Morita. We submit that neither Sinha nor Morita, alone or in any proper combination, disclose or suggest a multi-line utility power transmission system comprising "a first power transmission line ... ; a second power transmission line including a superconductor, in parallel with the first power transmission line ... ; and a power flow controller, coupled to the second power transmission line ... ; wherein the power flow controller is further configured to restrict a total amount of current allowed to pass through the second power transmission line while maintaining a superconductive state of the second power transmission line," as recited in claim 23.

As discussed above, we deny that Morita's current-limiting element is a power flow controller, and we further deny that it would have been obvious to combine Morita's current-limiting element with Sinha's power transmission system. However, even assuming *arguendo* that Morita's current-limiting element is a power flow controller coupled to Sinha's power transmission line including a superconductor, such a system would be unable to maintain a superconductive state of the power transmission line. Morita's current-limiting element undergoes a sudden transition from superconductivity to normal conductivity (col. 2, lines 60-67). Upon this transition, the resistance of the current-limiting element drastically increases to a level associated with normal conductivity, with the corresponding significant decrease in current shown in Fig. 10. Such an increase in resistance and decrease in current flowing into the power transmission line will prevent the transmission line from remaining in a superconductive state. Thus, even if Morita's current-limiting device was combined with Sinha's power transmission system, one still would not arrive at the multi-line utility power transmission system of claim 23.

For at least this reason, we submit that claim 23 is patentable over Sinha and Morita.

Conclusion

It is believed that all of the pending claims have been addressed. However, the absence of a reply to a specific rejection, issue or comment does not signify agreement with or concession of that rejection, issue or comment. In addition, because the arguments made above may not be exhaustive, there may be reasons for patentability of any or all pending claims (or other claims) that have not been expressed. Finally, nothing in this paper should be construed as an intent to concede any issue with regard to any claim, except as specifically stated in this paper, and the amendment of any claim does not necessarily signify concession of unpatentability of the claim prior to its amendment.

No fees are believed to be due. Please apply any charges or credits to Deposit Account No. 50-4189, referencing Attorney Docket No. 30020-189001.

Respectfully submitted,

Date: July 8, 2008

Frank R. Occhiuti
Reg. No. 35,306

Customer No. 69713
Occhiuti Rohlicek & Tsao LLP
10 Fawcett Street
Cambridge, MA 02138
Telephone: (617) 500-2501
Facsimile: (617) 500-2499
41744.doc